

2 Phase Stepper Motor

High Rigidity Slide Table Type

Without Motor Brake

Series LXS

High Rigidity
Direct Acting
Guide

Slide Screw
ø8mm/6mm lead

How to Order

LXSH2 SA Stroke S F9N 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None
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Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) F9N1G2

Auto switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
Without auto switch				
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
With sensor rail, without proximity switch				
GN	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/solid state	1	N.C. (B contact)

* Refer to page 318 for detailed specifications of proximity switches.

Specifications

		Standard stroke	mm	50	75	100	125	150
Performance	Body weight	kg	1.9	2.1	2.3	2.5	2.7	
	Operating temperature range	°C	5 to 40 (with no condensation)					
	Work load	kg	9 (4) horizontal/4 (4) vertical (Note 1)					
	Speed	mm/s	to 100 (Note 2)					
	Positioning repeatability	mm	±0.05					
Main parts	Motor	2 phase stepper motor (without brake)						
	Lead screw	Slide screw ø8mm, 6mm lead						
	Guide	High rigidity direct acting guide						
Home position switch	Model	Photo micro sensor EE-SX673						
Driver	Model	LC6D-220AD (Refer to page 306 for details.)						
Positioning driver	Model	LC6C-220AD (Refer to page 309 for details.)						

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ().

Note 2) Since vibration may increase with low speed operation, use 6mm/s or more as a guide for speed.

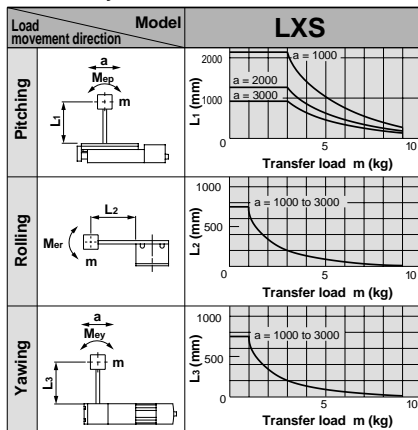
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Rolling	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me : Dynamic moment

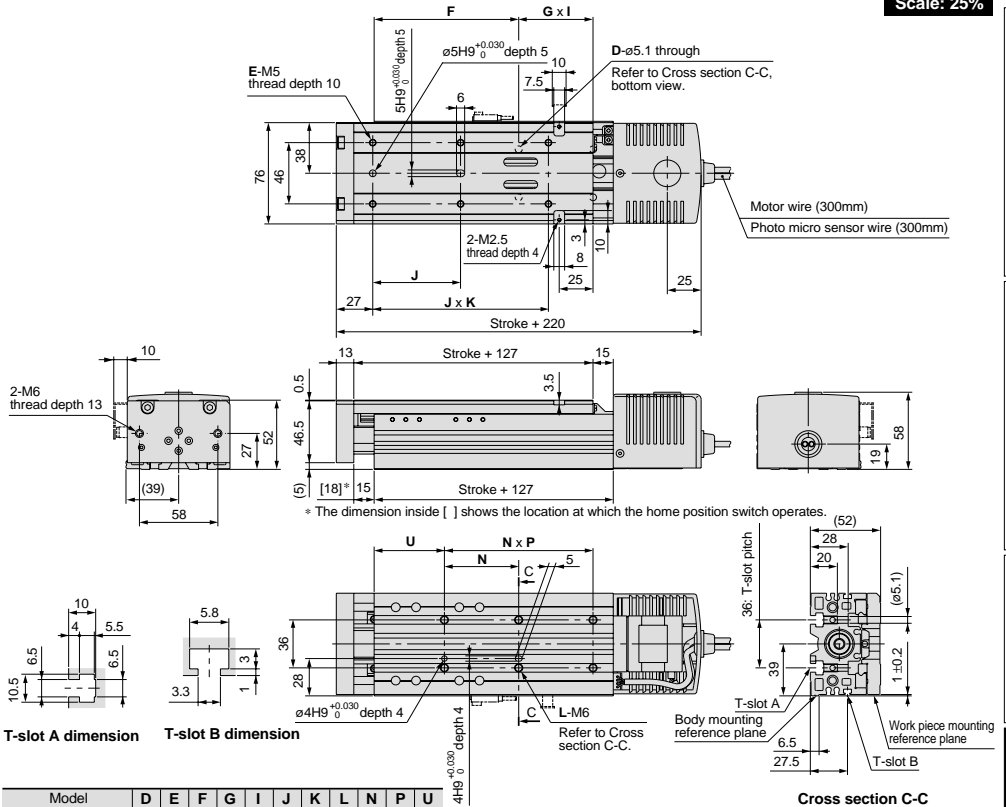
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH2SA

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH2SA-50	4	6	107	55	1	65	2	6	55	2	52
LXSH2SA-75	4	6	112	65	1	75	2	6	65	2	47
LXSH2SA-100	4	8	122	75	1	65	3	6	75	2	47
LXSH2SA-125	4	8	132	85	1	70	3	6	85	2	47
LXSH2SA-150	6	8	112	65	2	75	3	8	65	3	47

Refer to page 301 for mounting.

Positioning Time Guide (for Horizontal Mount)

For transfer load of 0kg

		Positioning time (sec)					
Positioning distance (mm)		1	10	50	100	150	
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1	
	50	0.1	0.3	1.1	2.1	3.1	
	100	0.1	0.2	0.6	1.1	1.6	

For transfer load of 9kg

		Positioning time (sec)					
Positioning distance (mm)		1	10	50	100	150	
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1	
	50	0.1	0.3	1.1	2.1	3.1	
	100	0.1	0.2	0.6	1.1	1.6	

For transfer load of 4.5kg

		Positioning time (sec)					
Positioning distance (mm)		1	10	50	100	150	
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1	
	50	0.1	0.3	1.1	2.1	3.1	
	100	0.1	0.2	0.6	1.1	1.6	

Refer to page 302 for acceleration time.

2 Phase Stepper Motor

High Rigidity Slide Table Type

Without Motor Brake

Series LXS

High Rigidity
Direct Acting
Guide

Slide Screw

∅8mm/12mm lead

How to Order

LXSH2 **SB** — **Stroke** **S** — **F9N** **1**

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None
-----	------

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) F9N1G2

Auto switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
GN	With sensor rail, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/solid state	1	N.C. (B contact)

* Refer to page 318 for detailed specifications of proximity switches.

Specifications

Performance	Standard stroke	mm	50	75	100	125	150
	Body weight	kg	1.9	2.1	2.3	2.5	2.7
	Operating temperature range	°C	5 to 40 (with no condensation)				
	Work load	kg	4.5 (4) horizontal/2 (2) vertical (Note 1)				
	Speed	mm/s	to 200 (Note 2)				
Main parts	Positioning repeatability	mm	±0.05				
	Motor	2 phase stepper motor (without brake)					
	Lead screw	Slide screw ∅8mm, 12mm lead					
Home position switch	Guide	High rigidity direct acting guide					
	Model	Photo micro sensor EE-SX673					
Driver	Model	LC6D-220AD (Refer to page 306 for details.)					
Positioning driver	Model	LC6C-220AD (Refer to page 309 for details.)					

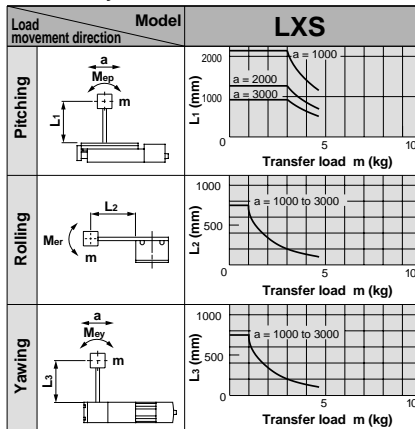
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Rolling	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me : Dynamic moment

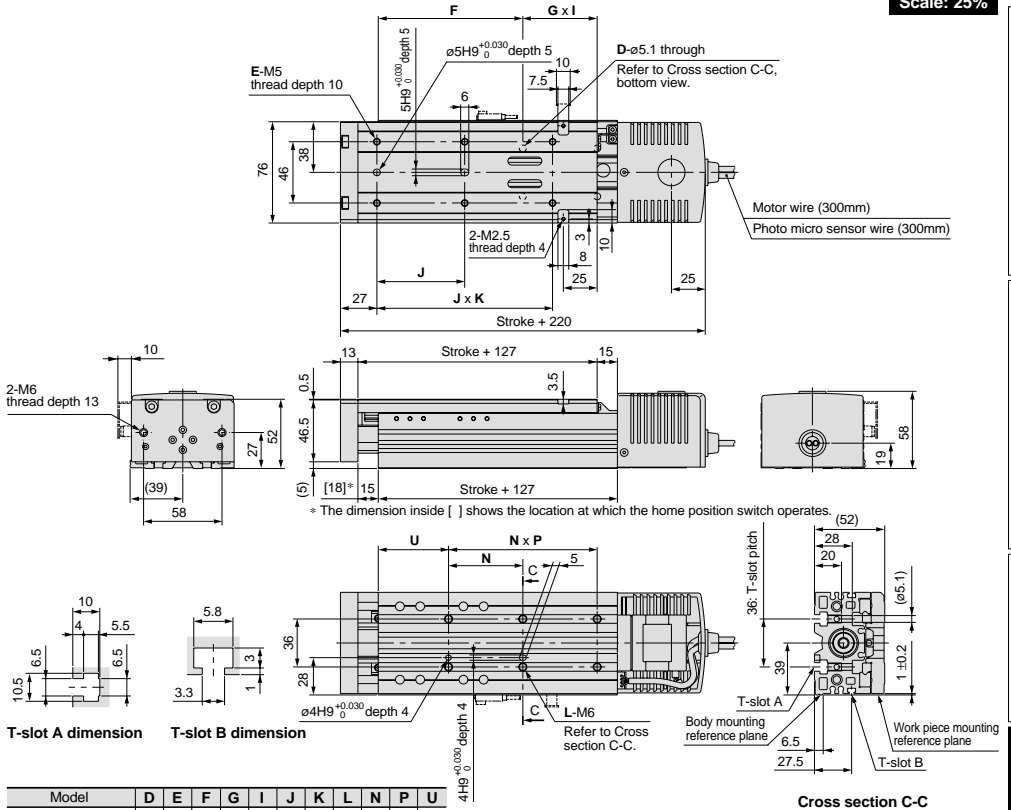
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH2SB

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH2SB-50	4	6	107	55	1	65	2	6	55	2	52
LXSH2SB-75	4	6	112	65	1	75	2	6	65	2	47
LXSH2SB-100	4	8	122	75	1	65	3	6	75	2	47
LXSH2SB-125	4	8	132	85	1	70	3	6	85	2	47
LXSH2SB-150	6	8	112	65	2	75	3	8	65	3	47

Refer to page 301 for mounting.

Positioning Time Guide (for Horizontal Mount)

For transfer load of 0kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6
	200	0.1	0.1	0.3	0.6	0.8

For transfer load of 2.5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6
	200	0.1	0.1	0.3	0.6	0.8

Refer to page 302 for acceleration time.

For transfer load of 4.5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6
	200	0.1	0.2	0.4	0.6	0.9

2 Phase Stepper Motor

High Rigidity Slide Table Type

With Motor Brake

Series LXS

High Rigidity
Direct Acting
Guide

Slide Screw
ø8mm/6mm lead

How to Order

LXSH2 SA Stroke SB F9N 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None
-----	------

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) F9N1G2

Specifications

		Standard stroke	mm	50	75	100	125	150
Performance	Body weight	kg		2.1	2.3	2.5	2.7	2.9
	Operating temperature range	°C	5 to 40 (with no condensation)					
	Work load	kg	9 (4) horizontal/4 (4) vertical (Note 1)					
	Speed	mm/s	to 100 (Note 2)					
	Positioning repeatability	mm	±0.05					
Main parts	Motor	2 phase stepper motor (with brake)						
	Lead screw	Slide screw ø8mm, 6mm lead						
	Guide	High rigidity direct acting guide						
	Electromagnetic brake	Model	De-energized operating type					
		Static torque	0.1N·m or more					
Rated voltage		24VDC ±5%						
	Power consumption	5W						
Home position switch	Model	Photo micro sensor EE-SX673						
Driver	Model	LC6D-220AD (Refer to page 306 for details.)						
Positioning driver	Model	LC6C-220AD (Refer to page 309 for details.)						

Auto switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
GN	With sensor rail, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/solid state	1	N.C. (B contact)

* Refer to page 318 for detailed specifications of proximity switches.

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ().

Note 2) Since vibration may increase with low speed operation, use 6mm/s or more as a guide for speed.

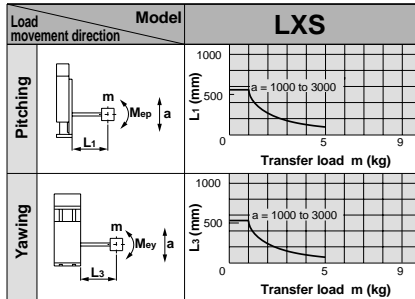
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me : Dynamic moment

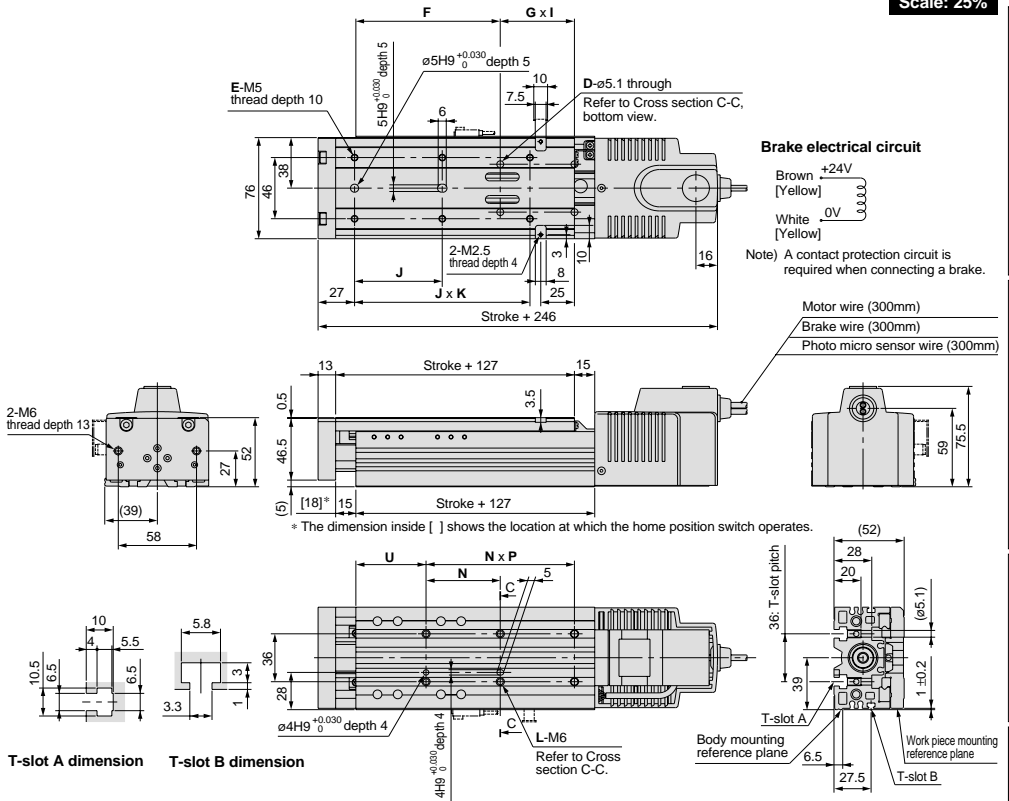
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH2SA

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH2SA-50□B	4	6	107	55	1	65	2	6	55	2	52
LXSH2SA-75□B	4	6	112	65	1	75	2	6	65	2	47
LXSH2SA-100□B	4	8	122	75	1	65	3	6	75	2	47
LXSH2SA-125□B	4	8	132	85	1	70	3	6	85	2	47
LXSH2SA-150□B	6	8	112	65	2	75	3	8	65	3	47

Cross section C-C

Refer to page 301 for mounting.

Positioning Time Guide (for Vertical Mount)

For transfer load of 0kg

Positioning distance (mm)		Positioning time (sec)					
		1	10	50	100	150	
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1	
	50	0.1	0.3	1.1	2.1	3.1	
	100	0.1	0.2	0.6	1.1	1.6	

For transfer load of 4kg

Positioning distance (mm)		Positioning time (sec)					
		1	10	50	100	150	
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1	
	50	0.1	0.3	1.1	2.1	3.1	
	100	0.1	0.2	0.6	1.1	1.6	

For transfer load of 2kg

Positioning distance (mm)		Positioning time (sec)					
		1	10	50	100	150	
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1	
	50	0.1	0.3	1.1	2.1	3.1	
	100	0.1	0.2	0.6	1.1	1.6	

Refer to page 302 for acceleration time.

2 Phase Stepper Motor

High Rigidity Slide Table Type

With Motor Brake

Series LXS

High Rigidity
Direct Acting
Guide

Slide Screw
ø8mm/12mm lead

How to Order

LXSH2 **SB** - Stroke **S** **B** - **F9N** **1**

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None
-----	------

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) F9N1G2

Auto switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
Without auto switch				
Nil				
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
With sensor rail, without proximity switch				
GN				
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/solid state	1	N.C. (B contact)

* Refer to page 318 for detailed specifications of proximity switches.

Specifications

		Standard stroke	mm	50	75	100	125	150
Performance	Body weight	kg		2.1	2.3	2.5	2.7	2.9
	Operating temperature range	°C	5 to 40 (with no condensation)					
	Work load	kg	4.5 (4) horizontal/2 (2) vertical <small>Note 1)</small>					
	Speed	mm/s	to 200 <small>Note 2)</small>					
	Positioning repeatability	mm	±0.05					
Main parts	Motor	2 phase stepper motor (with brake)						
	Lead screw	Slide screw ø8mm, 12mm lead						
	Guide	High rigidity direct acting guide						
	Electromagnetic brake	Model	De-energized operating type					
		Static torque	0.1N·m or more					
Rated voltage		24VDC ±5%						
Power consumption	5W							
Home position switch	Model	Photo micro sensor EE-SX673						
Driver	Model	LC6D-220AD (Refer to page 306 for details.)						
Positioning driver	Model	LC6C-220AD (Refer to page 309 for details.)						

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ().

Note 2) Since vibration may increase with low speed operation, use 12mm/s or more as a guide for speed.

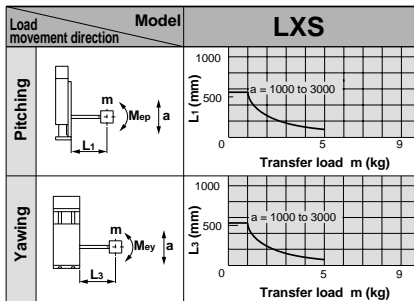
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
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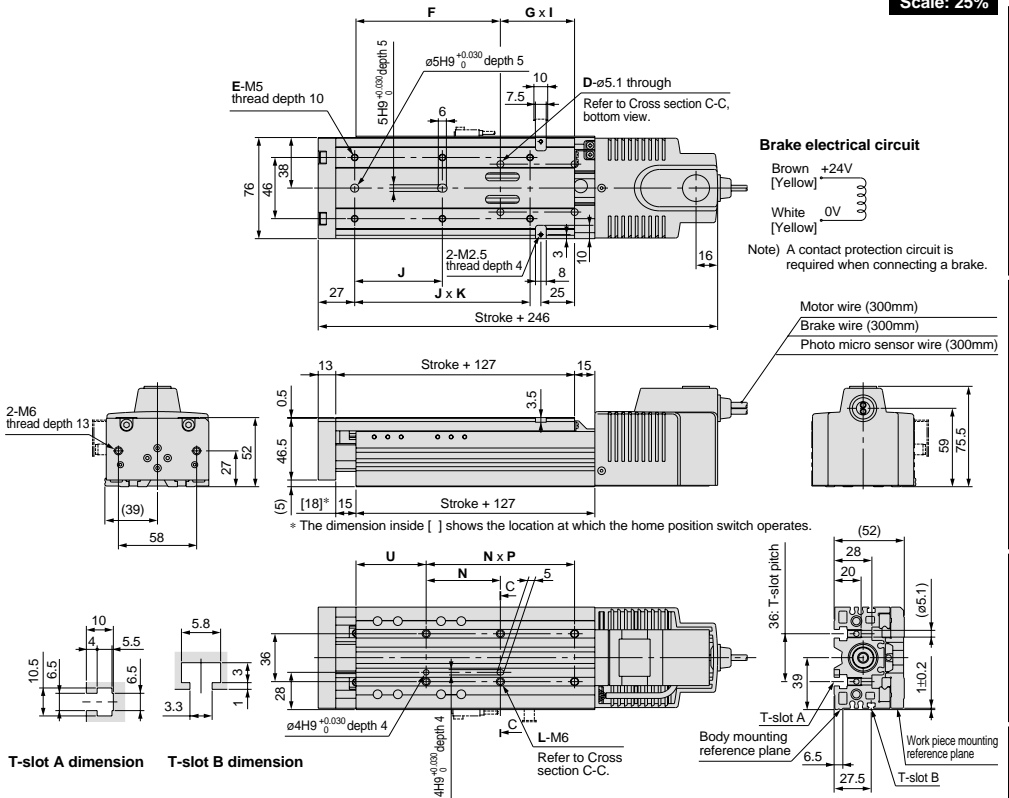
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH2SB

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH2SB-50□B	4	6	107	55	1	65	2	6	55	2	52
LXSH2SB-75□B	4	6	112	65	1	75	2	6	65	2	47
LXSH2SB-100□B	4	8	122	75	1	65	3	6	75	2	47
LXSH2SB-125□B	4	8	132	85	1	70	3	6	85	2	47
LXSH2SB-150□B	6	8	112	65	2	75	3	8	65	3	47

Positioning Time Guide (for Vertical Mount)

For transfer load of 0kg

Positioning distance (mm)		Positioning time (sec)					
		1	10	50	100	150	
Speed (mm/s)	50	0.1	0.3	1.1	2.1	4.1	
	100	0.1	0.2	0.6	1.1	2.1	
	200	0.1	0.1	0.3	0.6	1.1	

For transfer load of 2kg

Positioning distance (mm)		Positioning time (sec)					
		1	10	50	100	150	
Speed (mm/s)	50	0.1	0.3	1.1	2.1	4.1	
	100	0.1	0.2	0.6	1.1	2.1	
	200	0.1	0.2	0.4	0.6	1.1	

For transfer load of 1kg

Positioning distance (mm)		Positioning time (sec)					
		1	10	50	100	150	
Speed (mm/s)	50	0.1	0.3	1.1	2.1	4.1	
	100	0.1	0.2	0.6	1.1	2.1	
	200	0.1	0.1	0.3	0.6	1.1	

Refer to page 302 for acceleration time.

5 Phase Stepper Motor

High Rigidity Slide Table Type

High Rigidity
Direct Acting
Guide

Slide Screw

∅8mm/6mm lead

Without Motor Brake

Series LXS

How to Order

LXSH5 SA Stroke S F9N 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None
-----	------

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) F9N1G2

Auto switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
GN	With sensor plate, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/Solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/Solid state	1	N.C. (B contact)

* Refer to page 318 for detailed specifications of proximity switches.

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ().

Note 2) Since vibration may increase with low speed operation, use 6mm/s or more as a guide for speed.

Specifications

Standard stroke		mm	50	75	100	125	150
Performance	Body weight	kg	1.9	2.1	2.3	2.5	2.7
	Operating temperature range	°C	5 to 40 (with no condensation)				
	Work load	kg	6 (4) horizontal/2 (2) vertical (Note 1)				
	Speed	mm/s	to 100 (Note 2)				
	Positioning repeatability	mm	±0.05				
Main parts	Motor	5 phase stepper motor (without brake)					
	Lead screw	Slide screw ∅8mm, 6mm lead					
	Guide	High rigidity direct acting guide					
Home position switch	Model	Photo micro sensor EE-SX673					
Driver	Model	LC6D-507AD (Refer to page 306 for details.)					

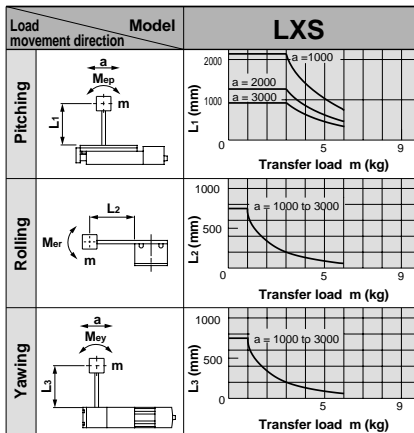
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Rolling	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me: Dynamic moment

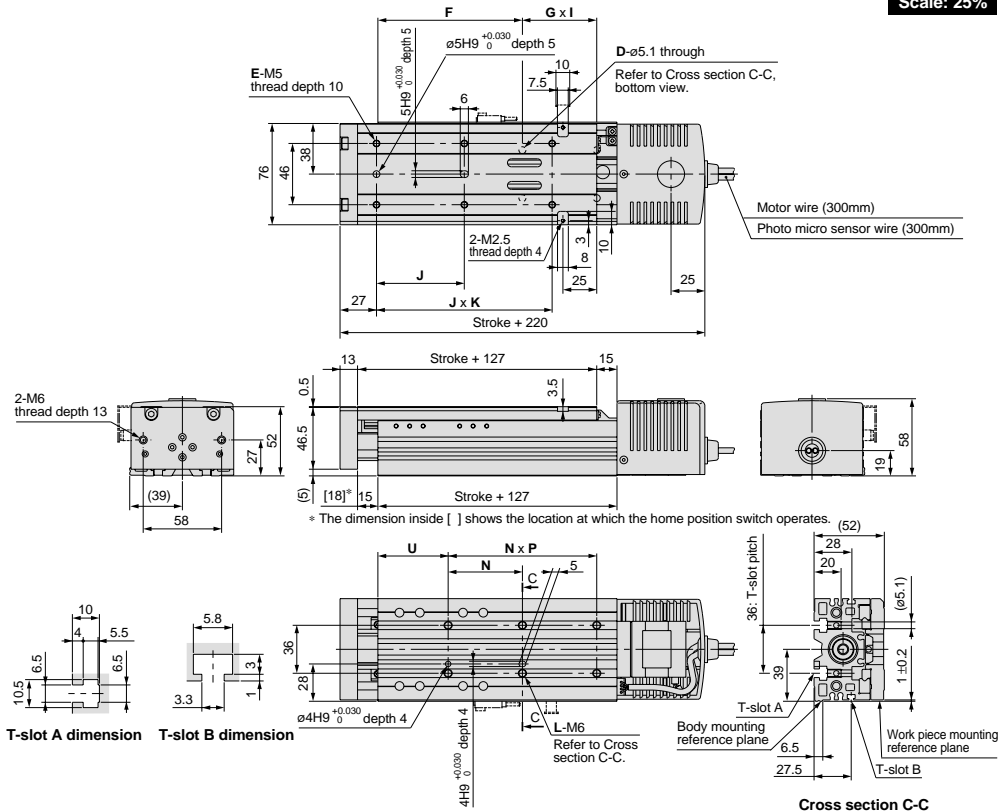
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH5SA

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH5SA-50	4	6	107	55	1	65	2	6	55	2	52
LXSH5SA-75	4	6	112	65	1	75	2	6	65	2	47
LXSH5SA-100	4	8	122	75	1	65	3	6	75	2	47
LXSH5SA-125	4	8	132	85	1	70	3	6	85	2	47
LXSH5SA-150	6	8	112	65	2	75	3	8	65	3	47

Refer to page 301 for mounting.

Positioning Time Guide (for Horizontal Mount)

For transfer load of 0kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6

For transfer load of 6kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6

For transfer load of 3kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6

Refer to page 302 for acceleration time.

5 Phase Stepper Motor Without Motor Brake

High Rigidity Slide Table Type

Series LXS

High Rigidity
Direct Acting
Guide

Slide Screw
ø8mm/12mm lead

How to Order

LXSH5 SB — **Stroke** **S** — **F9N** **1**

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None
-----	------

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) **F9N1G2**

Auto switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
GN	With sensor plate, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FBI	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/Solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/Solid state	1	N.C. (B contact)

* Refer to page 318 for detailed specifications of proximity switches.

Specifications

	Standard stroke	mm	50	75	100	125	150
Performance	Body weight	kg	1.9	2.1	2.3	2.5	2.7
	Operating temperature range	°C	5 to 40 (with no condensation)				
	Work load	kg	3 (3) horizontal/1 (1) vertical ^{Note 1)}				
	Speed	mm/s	to 200 ^{Note 2)}				
	Positioning repeatability	mm	±0.05				
Main parts	Motor	5 phase stepper motor (without brake)					
	Lead screw	Slide screw ø8mm, 12mm lead					
	Guide	High rigidity direct acting guide					
Home position switch	Model	Photo micro sensor EE-SX673					
Driver	Model	LC6D-507AD (Refer to page 306 for details.)					

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ().

Note 2) Since vibration may increase with low speed operation, use 12mm/s or more as a guide for speed.

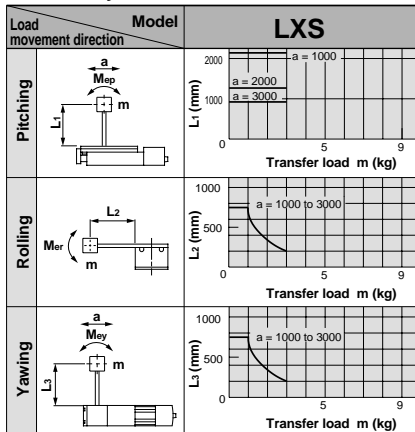
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Rolling	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me : Dynamic moment

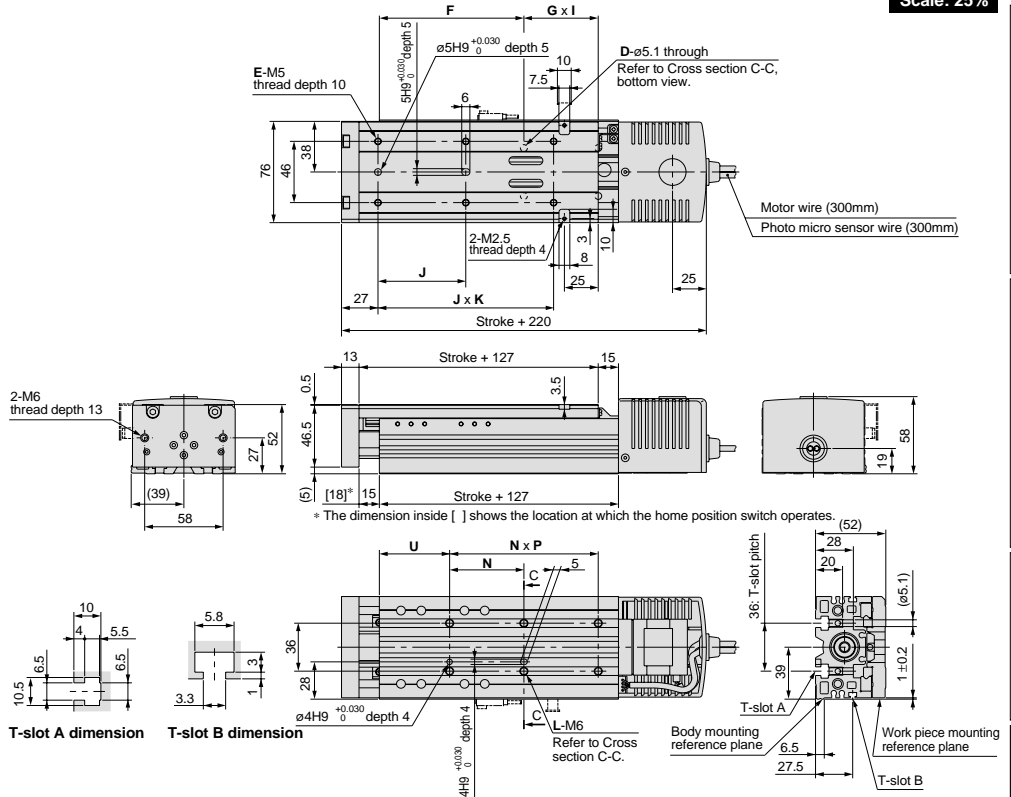
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH5SB

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH5SB-50	4	6	107	55	1	65	2	6	55	2	52
LXSH5SB-75	4	6	112	65	1	75	2	6	65	2	47
LXSH5SB-100	4	8	122	75	1	65	3	6	75	2	47
LXSH5SB-125	4	8	132	85	1	70	3	6	85	2	47
LXSH5SB-150	6	8	112	65	2	75	3	8	65	3	47

Cross section C-C

Refer to page 301 for mounting.

Positioning Time Guide (for Horizontal Mount)

For transfer load of 0kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6
	200	0.1	0.1	0.3	0.6	0.8

For transfer load of 3kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6
	200	0.1	0.2	0.4	0.6	0.9

For transfer load of 1.5kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6
	200	0.1	0.1	0.3	0.6	0.8

Refer to page 302 for acceleration time.

LJ1

LG1

LC1

LX

LC6D/LC6C

Switches

5 Phase Stepper Motor

High Rigidity Slide Table Type

With Motor Brake

Series LXS

High Rigidity
Direct Acting
Guide

Slide Screw
ø8mm/6mm lead

How to Order

LXSH5 SA Stroke SB F9N 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None
-----	------

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) F9N1G2

Auto switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
GN	With sensor plate, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/PNP	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/PNP	1	N.C. (B contact)
GU	GXL-8FU	2 wire/Solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/Solid state	1	N.C. (B contact)

* Refer to page 318 for detailed specifications of proximity switches.

Specifications

Standard stroke		mm	50	75	100	125	150
Performance	Body weight	kg	2.1	2.3	2.5	2.7	2.9
	Operating temperature range	°C	5 to 40 (with no condensation)				
	Work load	kg	6 (4) horizontal/2 (2) vertical (Note 1)				
	Speed	mm/s	to 100 (Note 2)				
	Positioning repeatability	mm	±0.05				
Main parts	Motor	5 phase stepper motor (with brake)					
	Lead screw	Slide screw ø8mm, 6mm lead					
	Guide	High rigidity direct acting guide					
	Electromagnetic brake	Model	De-energized operating type				
		Static torque	0.1N·m or more				
		Rated voltage	24VDC ±5%				
Power consumption		5W					
Home position switch	Model	Photo micro sensor EE-SX673					
Driver	Model	LC6D-507AD (Refer to page 306 for details.)					

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ().

Note 2) Since vibration may increase with low speed operation, use 6mm/s or more as a guide for speed.

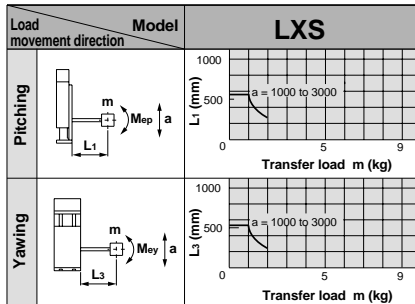
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me: Dynamic moment

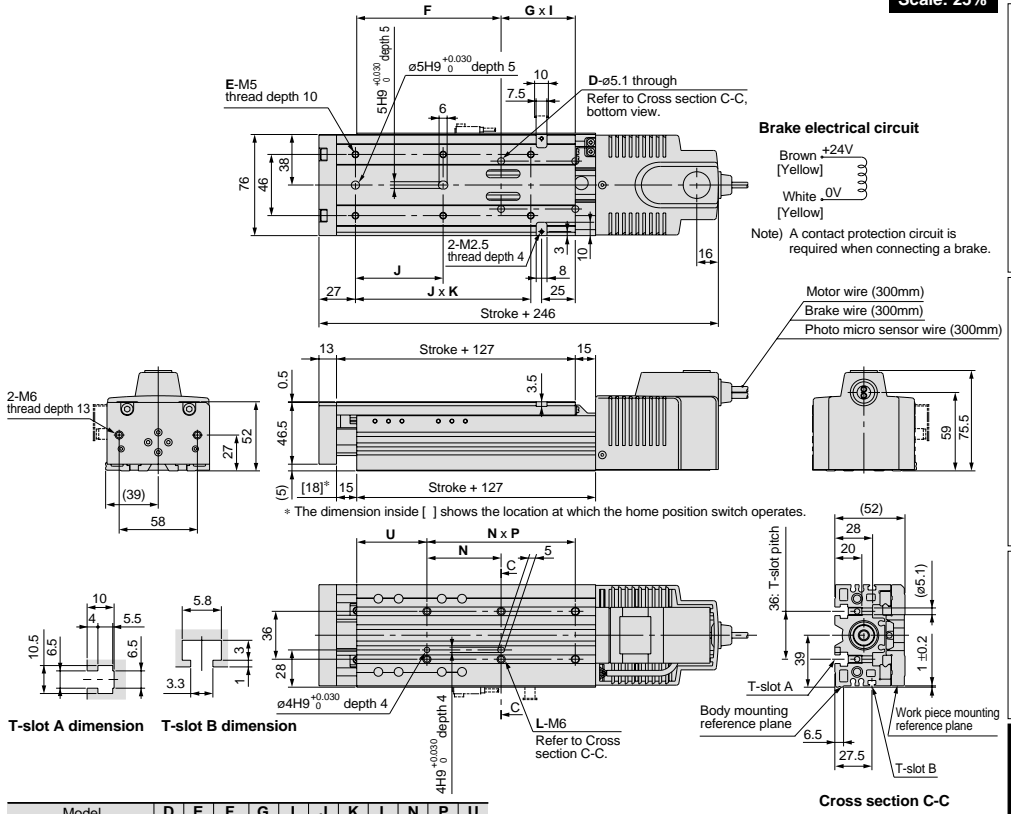
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH5SA

Scale: 25%



Brake electrical circuit



Note) A contact protection circuit is required when connecting a brake.

Motor wire (300mm)
Brake wire (300mm)
Photo micro sensor wire (300mm)

Model	D	E	F	G	I	J	K	L	N	P	U
LXSH5SA-50□B	4	6	107	55	1	65	2	6	55	2	52
LXSH5SA-75□B	4	6	112	65	1	75	2	6	65	2	47
LXSH5SA-100□B	4	8	122	75	1	85	3	6	75	2	47
LXSH5SA-125□B	4	8	132	85	1	70	3	6	85	2	47
LXSH5SA-150□B	6	8	112	65	2	75	3	8	65	3	47

Cross section C-C

Refer to page 301 for mounting.

Positioning Time Guide (for Vertical Mount)

For transfer load of 0kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6

For transfer load of 2kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6

For transfer load of 1kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6

Refer to page 302 for acceleration time.

LJ1
LG1
LC1
LX
LC6D/LC6C
Switches

5 Phase Stepper Motor

High Rigidity Slide Table Type

High Rigidity
Direct Acting
Guide

Slide Screw

ø8mm/12mm lead

With Motor Brake

Series LXS

How to Order

LXSH5 **SB** - Stroke **S** B - **F9N** **1**

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None
-----	------

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) F9N1G2

Auto switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
GN	With sensor plate, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/Solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/Solid state	1	N.C. (B contact)

* Refer to page 318 for detailed specifications of proximity switches.

Specifications

Standard stroke		mm	50	75	100	125	150
Performance	Body weight	kg	2.1	2.3	2.5	2.7	2.9
	Operating temperature range	°C	5 to 40 (with no condensation)				
	Work load	kg	3 (3) horizontal/1 (1) vertical (Note 1)				
	Speed	mm/s	to 200 (Note 2)				
	Positioning repeatability	mm	±0.05				
Main parts	Motor	5 phase stepper motor (with brake)					
	Lead screw	Slide screw ø8mm, 12mm lead					
	Guide	High rigidity direct acting guide					
	Electromagnetic brake	Model	De-energized operating type				
		Static torque	0.1N·m or more				
Rated voltage		24VDC ±5%					
Power consumption		5W					
Home position switch	Model	Photo micro sensor EE-SX673					
Driver	Model	LC6D-507AD (Refer to page 306 details.)					

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ().

Note 2) Since vibration may increase with low speed operation, use 12mm/s or more as a guide for speed.

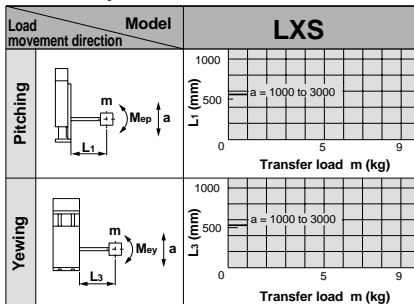
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me: Dynamic moment

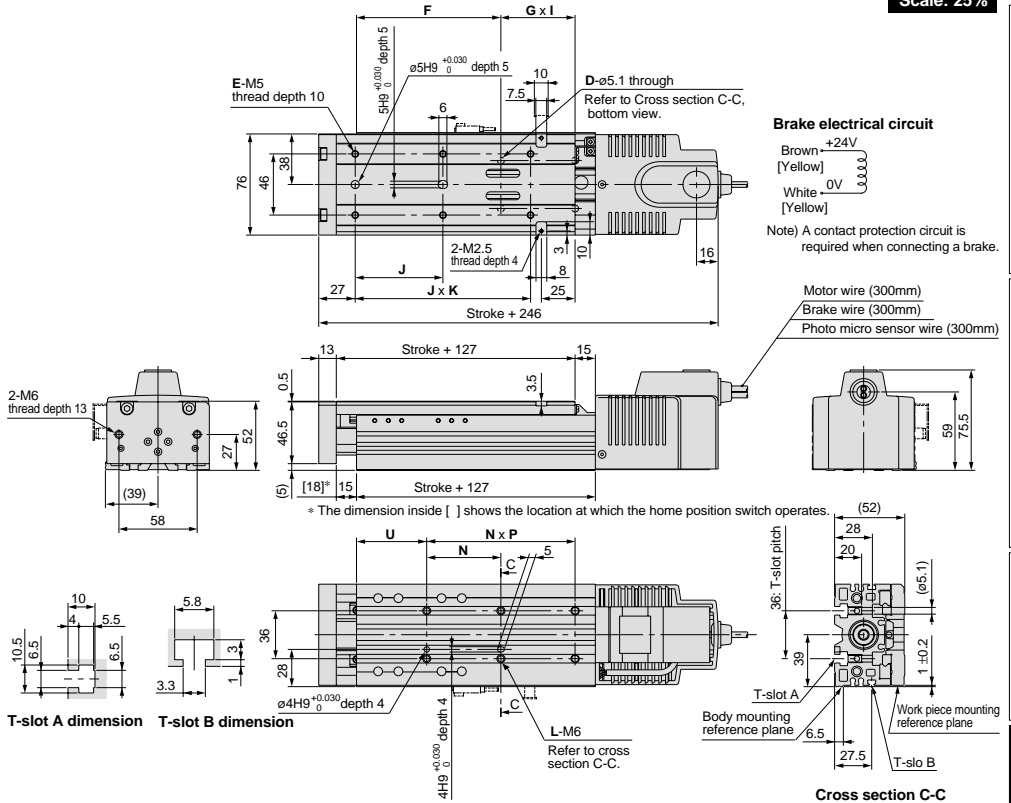
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH5SB

Scale: 25%



	D	E	F	G	I	J	K	L	N	P	U
LXSH5SB-50□B	4	6	107	55	1	65	2	6	55	2	52
LXSH5SB-75□B	4	6	112	65	1	75	2	6	65	2	47
LXSH5SB-100□B	4	8	122	75	1	65	3	6	75	2	47
LXSH5SB-125□B	4	8	132	85	1	70	3	6	85	2	47
LXSH5SB-150□B	6	8	112	65	2	75	3	8	65	3	47

Positioning Time Guide (for Vertical Mount)

For transfer load of 0kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6
	200	0.1	0.1	0.3	0.6	0.8

For transfer load of 1kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	50	0.1	0.3	1.1	2.1	3.1
	100	0.1	0.2	0.6	1.1	1.6
	200	0.1	0.1	0.3	0.6	0.8

Refer to page 302 for acceleration time.

How to Order

LX S H 2 S B 100 S B F9N 1 Q

Actuator configuration

S Slide table type

Guide type

H Direct acting guide

Motor type

2 2 phase stepper motor
5 5 phase stepper motor

Lead screw type

S Slide screw

Lead screw lead

A	6mm
B	12mm

Stroke

50	50mm
75	75mm
100	100mm
125	125mm
150	150mm

Use a driver with CE marking.

CE marking

Number of auto switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

CE marking

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Brake

Nil	Without brake
B	With brake

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Specifications

Motor	2 phase stepper motor (with/without brake)		5 phase stepper motor (with/without brake)	
Lead screw	Slide screw $\varnothing 8\text{mm}$			
Positioning repeatability	$\pm 0.05\text{mm}$			
Lead	6mm	12mm	6mm	12mm
Speed ^{Note 1)}	3 to 100mm/s	6 to 200mm/s	3 to 100mm/s	6 to 200mm/s
Work load ^{Note 2)}	Horizontal	9 (4)kg	4.5 (4)kg	6 (4)kg
	Vertical	4 (4)kg	2 (2)kg	2 (2)kg
Guide type	High rigidity direct acting guide			
Operating temperature range	5° to 40°C (with no condensation)			
Home position switch (optional)	Photo micro sensor EE-SX673 (Refer to page 319 for details.)			
Brake specifications	Model	De-energized operating type		
	Static torque	0.1N·m		
	Rated voltage	24VDC $\pm 5\%$		
	Power consumption	5W (at 75°C)		
Applicable driver	LC6D-220AD-Q (Refer to page 306 for details.)		LC6D-507AD-Q (Refer to page 306 for details.)	
Positioning repeatability	$\pm 0.05\text{mm}$			
CE marking accessories	Holding plate: MB1 (1 pc.), Phillips countersunk head screw: M3 x 6/(1 pc.) Phillips binding head screw: M3 x 4/(2 pcs.), Toothed lock washer M3 (2 pcs.) Binding band: T18S (1 pc.)			

Note 1) Since vibration may increase with low speed operation, use 6mm/s or more for 6mm lead, and 12mm/s or more for 12mm lead as a guide for speed.

Note 2) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ().

Weights

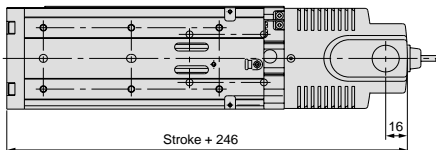
Model	Standard stroke (mm)					Additional weight with motor (kg)
	50	75	100	125	150	
LXSH₂S	1.9	2.1	2.3	2.5	2.7	0.2

For basic specifications such as allowable moment, refer to the "Standard" pages for equivalent products listed on Features pages 3 and 4.

Dimensions/LXSH $\frac{2}{5}$ S

Scale: 25%

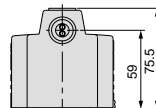
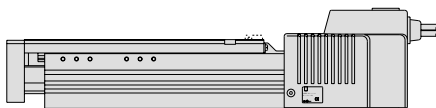
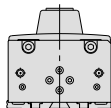
With brake



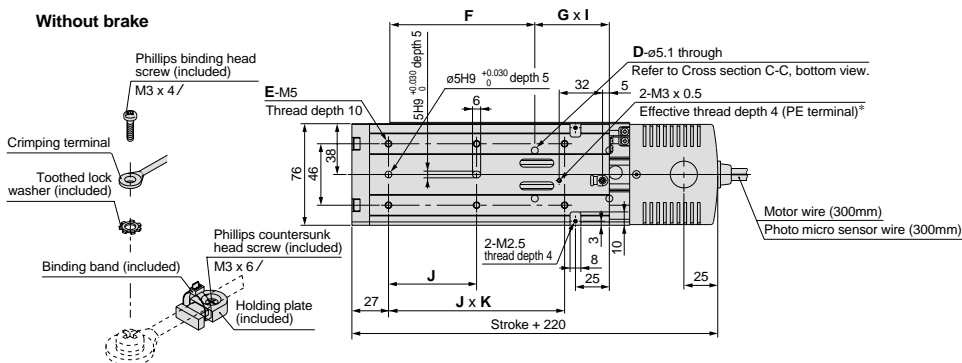
Brake electrical circuit



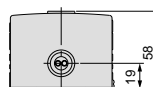
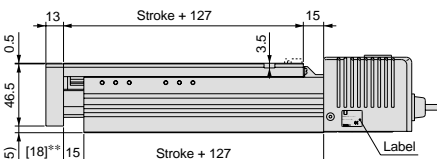
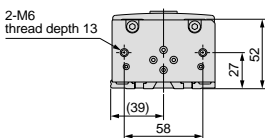
Note) A contact protection circuit is required when connecting a brake.



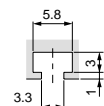
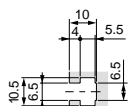
Without brake



* When using a PE terminal, use accessories included as shown above.

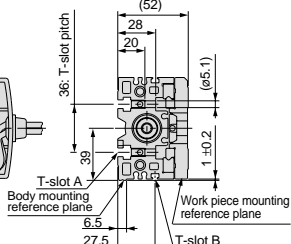
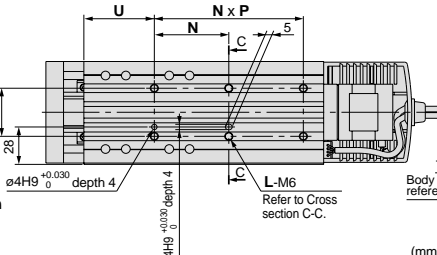


** The dimension inside [] shows the location at which the home position switch operates.



T-slot A dimension

T-slot B dimension



Cross Section C-C

Refer to page 301 for mounting.

Model	D	E	F	G	I	J	K	L	N	P	U
LXSH□S□- 50□	4	6	107	55	1	65	2	6	55	2	52
LXSH□S□- 75□	4	6	112	65	1	75	2	6	65	2	47
LXSH□S□-100□	4	8	122	75	1	65	3	6	75	2	47
LXSH□S□-125□	4	8	132	85	1	70	3	6	85	2	47
LXSH□S□-150□	6	8	112	65	2	75	3	8	65	3	47

LJ1

LG1

LC1

LX

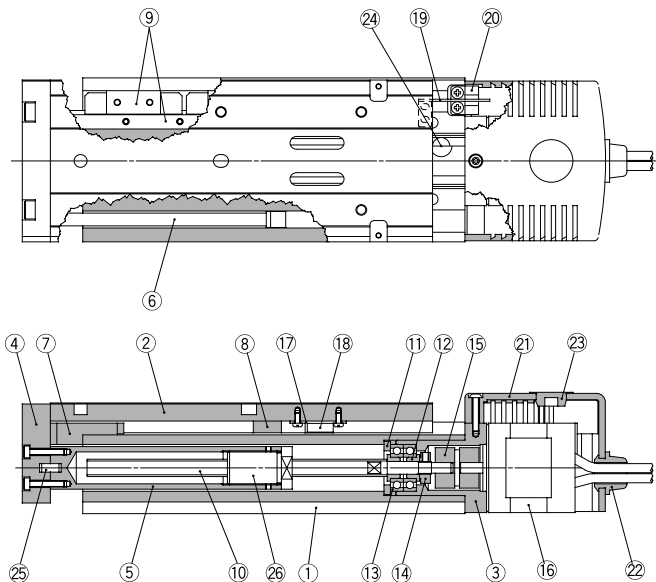
LC6D/LC6C

Switches

Series LX

Construction

Series LXS



Parts list

No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Table	Aluminum alloy	Anodized
3	Adaptor	Aluminum alloy	Anodized
4	Plate	Aluminum alloy	Anodized
5	Tube	Aluminum alloy	Anodized
6	Rod assembly	—	With magnet
7	Stopper A	—	With bumper
8	Stopper B	—	
9	Direct acting guide (block, rail)	—	
10	Rolled screw (shaft only)	Alloy steel	
11	Tension ring	Stainless steel	
12	Bearing retainer	Stainless steel	
13	Bearing	—	

Parts list

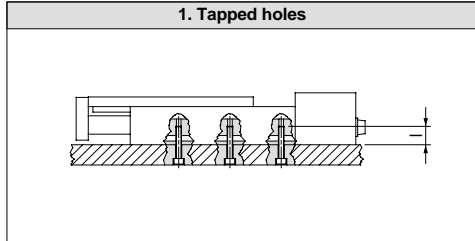
No.	Description	Material	Note
14	Lock nut	Carbon steel	Black zinc chromated
15	Coupling	—	
16	Motor	—	
17	Magnet holder	Resin	
18	Magnet	Rare earth magnet	
19	Sensor plate	Mild steel	With home position switch
20	Photo micro sensor	—	With home position switch
21	Motor cover	Resin	
22	Plug A		
23	Plug B		
24	Cap		
25	Parallel pin	Carbon steel	
26	Nut	Resin/Alloy steel	

Mounting

Series LXS

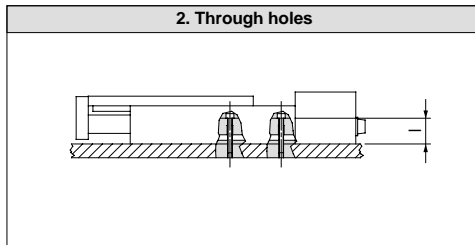
Actuator mounting

An actuator can be mounted from two directions, which can be selected depending on the equipment or work piece.

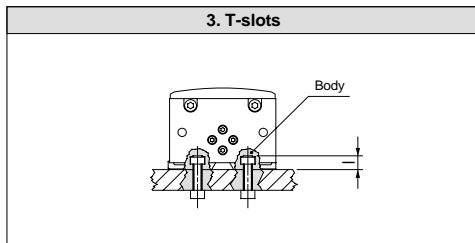


Model	Bolt	Max. tightening torque N·m	Max. screw-in depth (/mm)
LXS	M6 x 1	7.4	20

Caution Use bolts at least 0.5mm shorter than the maximum screw-in depth, so they do not touch the body.



Model	Bolt	Max. tightening torque N·m	Body thickness (/mm)
LXS	M5 x 0.8	4.4	28

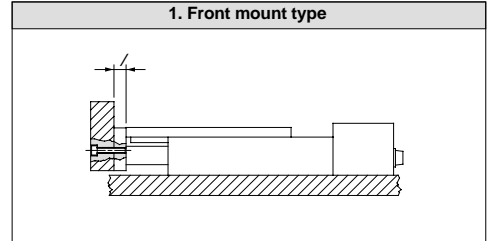


Model	Bolt	Max. tightening torque N·m	Max. screw-in depth (/mm)
LXS	M6 x 1	7.4	10

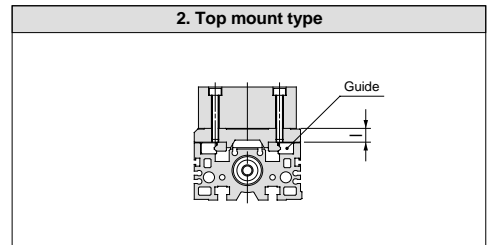
Caution Use bolts at least 0.5mm shorter than the maximum screw-in depth, so they do not touch the body.

Work piece mounting

Work pieces can be mounted on two sides of the actuator.



Model	Bolt	Max. tightening torque N·m	Body thickness (/mm)
LXS	M6 x 1	7.4	13



Model	Bolt	Max. tightening torque N·m	Max. screw-in depth (/mm)
LXS	M5 x 0.8	4.4	10

Caution Use bolts at least 0.5mm shorter than the maximum screw-in depth, so they do not touch the body.

LJ1

LG1

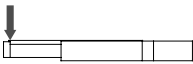

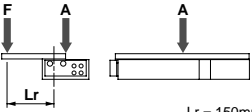
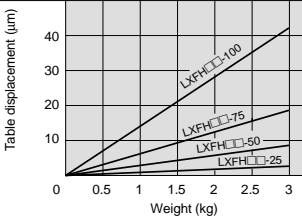
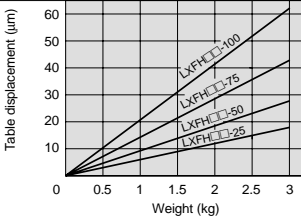
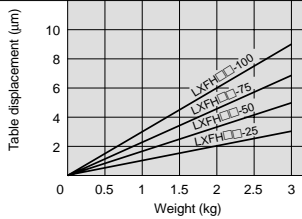
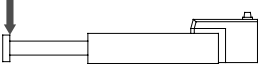
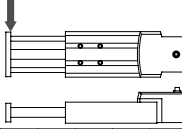
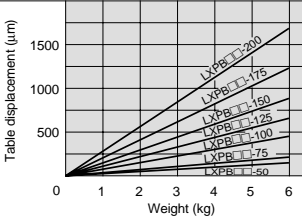
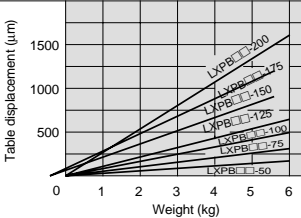
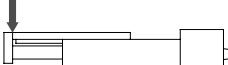

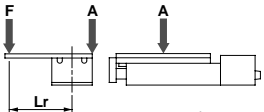
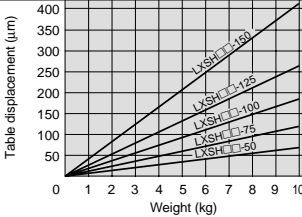
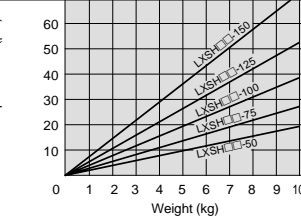
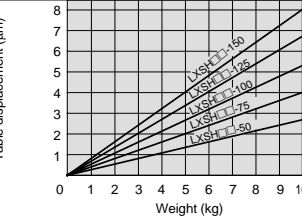
LC1

LX

LC6D/LC6C

Switches

Table Deflection

	Table displacement by pitch moment load	Table displacement by yaw moment load	Table displacement by roll moment load
LXF	<p>Displacement at the section indicated by the arrow when a load is applied to this section with the slide table fully extended.</p> 	<p>Displacement at the section indicated by the arrow when a load is applied to this section with the slide table fully extended.</p> 	<p>Displacement at "A" when a load is applied to "F" with the slide table retracted.</p>  <p style="text-align: right;">$L_r = 150\text{mm}$</p>
			
LXP	<p>Displacement at the section indicated by the arrow when a load is applied to this section with the electric actuator fully extended.</p> 	<p>Displacement at the section indicated by the arrow when a load is applied to this section with the electric actuator fully extended.</p> 	
			
LXS	<p>Displacement at the section indicated by the arrow when a load is applied to this section with the slide table fully extended.</p> 	<p>Displacement at the section indicated by the arrow when a load is applied to this section with the slide table fully extended.</p> 	<p>Displacement at "A" when a load is applied to "F" with the slide table retracted.</p>  <p style="text-align: right;">$L_r = 200\text{mm}$</p>
			



Applicable Actuators

D-F9	Series LXF*, LXP, LXS
D-Y7GL	Series LJ1 (non-standard motor)

* Cannot be mounted on Series LXF with ball screw specification.

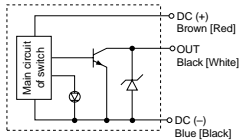
Auto Switch Specifications

Auto switch part no.	D-F9N	D-F9P	D-F9B	D-F9G	D-F9H
Contact	N.O. (A contact)			N.C. (B contact)	
Electrical entry	In-line				
Wiring type	3 wire		2 wire	3 wire	
Output type	NPN	PNP	—	NPN	PNP
Applicable load	IC circuit, Relay, PLC		24VDC relay, PLC	IC circuit, Relay, PLC	
Power supply voltage	5, 12, 24VDC (4.5 to 28V)		—	5, 12, 24VDC (4.5 to 28V)	
Current consumption	10mA or less		—	10mA or less	
Load voltage	28VDC or less	—	24VDC (10 to 28VDC)	28VDC or less	—
Load current	40mA or less	80mA or less	5 to 40mA	40mA or less	80mA or less
Internal voltage drop	1.5V or less (0.8V or less at load current of 10mA)	0.8V or less	0.4V or less	1.5V or less (0.8V or less at load current of 10mA)	0.8V or less
Leakage current	100µA or less at 24VDC		80mA or less	100µA or less at 24VDC	
Indicator light	Red LED lights up when ON			Red LED lights up when OFF	

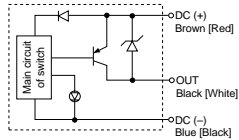
Auto switch internal circuits

Lead wire colors inside [] are those prior to conformity with IEC standards.

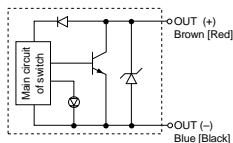
D-F9G, D-Y7GL



D-F9P, D-F9H



D-F9B



- Lead wire ——— Oil resistant heavy duty vinyl cord, ø2.7, 0.15mm² x 3 wire (Brown, Black, Blue [Red, White, Black]), 0.18mm² x 2 wire (Brown, Blue [Red, Black])
- Insulation resistance — 50MΩ or more at 500VDC (between lead wire and case)
- Withstand voltage — 1000VAC for 1 min. (between lead wire and case)
- Indication light — Lights when ON
- Ambient temperature — -10 to 60°C
- Operating time — 1ms or less
- Impact resistance — 1000m/s²

Auto switch part no.	D-Y7GL
Contact	N.C. (B contact)
Electrical entry	In-line
Wiring type	3 wire
Output type	NPN
Applicable load	IC circuit, Relay, PLC
Power supply voltage	5, 12, 24VDC (4.5 to 28V)
Current consumption	10mA or less
Load voltage	28VDC or less
Load current	40mA or less
Internal voltage drop	1.5V or less (0.8V or less at load current of 10mA)
Leakage current	100µA or less at 24VDC
Indicator light	Red LED lights up when OFF

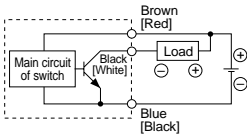
Switches

Solid State Switch Connection and Examples

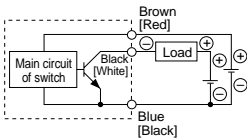
Basic Wiring

3 wire, NPN

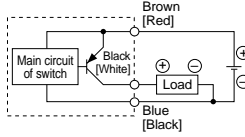
(When the switch power supply and load power supply are the same)



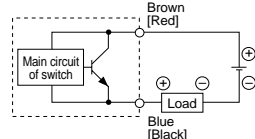
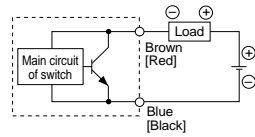
(When the switch power supply and load power supply are separate)



3 wire, PNP

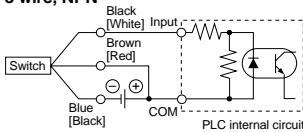


2 wire

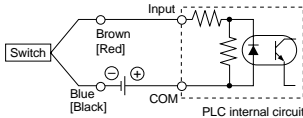


Examples of Connection to PLC

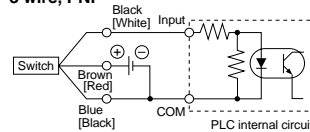
Sink input specifications, 3 wire, NPN



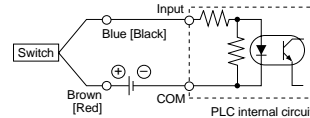
2 wire



Source input specifications, 3 wire, PNP



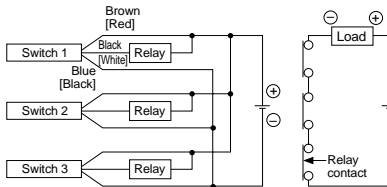
2 wire



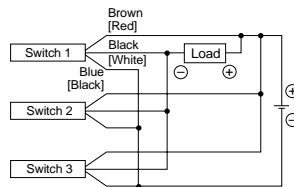
Connect according to the applicable PLC input specifications, as the connection method will vary depending on the PLC input specifications.

Connection Examples for AND (Series) and OR (Parallel)

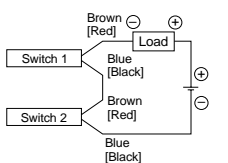
3 wire, AND connection for NPN output



3 wire, OR connection for NPN output



2 wire with 2 switch AND connection

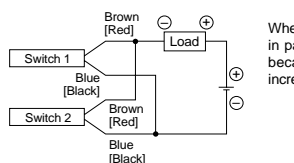


When two switches are connected in series, a load may malfunction because the load voltage will decline when in the ON state. The indicator lights will light up when both of the switches are in the ON state.

Load voltage at ON = Power supply voltage - Residual voltage x 2 pcs.
= 24V - 4V x 2 pcs.
= 16V

Example: Power supply voltage is 24VDC.
Internal voltage drop in switch is 4V.

2 wire with 2 switch OR connection



When two switches are connected in parallel, malfunction may occur because the load voltage will increase when in the OFF state.

Load voltage at OFF = Leakage current x 2 pcs. x Load impedance
= 1mA x 2pcs. = 3kΩ
= 6V

Example: Load impedance is 3kΩ.
Leakage current from switch is 1mA.

Solid-state Auto Switches for Direct Mounting Series D-M9N(V)/D-M9P(V)/D-M9B(V)



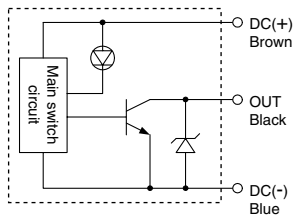
Grommet

- Reduced load currents for two-wire model (2.5 to 40 mA)
- Compliance with lead-free requirements
- Use of UL-approved lead wires (style 2844)

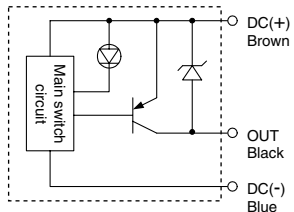


Internal circuits

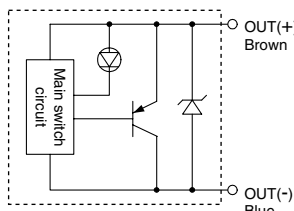
D-M9N/M9NV



D-M9P/M9PV



D-M9B/M9BV



Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□/D-M9□V (with Indicator light)						
Model number	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring	Three-wire			Two-wire		
Output	NPN		PNP		—	
Applicable load	Integrated circuit, relay and PLC				24 V DC relay and PLC	
Power voltage	5, 12, or 24 V DC (4.5 to 28 V DC)				—	
Current consumption	10 mA or less				—	
Load voltage	28 V DC or less		—		24 V DC (10 to 28 V DC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less				4 V or less	
Leakage current	100 μA max. at 24 V DC				0.8 mA or less	
Indicator light	Red LED lights when ON.					

- Lead wire: oil-proof heavy-duty vinyl cable
2.7 x 3.2 with elliptic cross-section, 0.15 mm², two cores (D-M9B),
or three cores (D-M9N and D-M9P)

Solid state switch specifications

Leakage current	3-wire: 100 μA or less; 2-wire: 0.8 mA max.
Operating time	1 ms or less
Impact resistance	1000 m/s ²
Insulation resistance	50 MΩ or more at 500 V DC (between lead wire and case)
Withstand voltage	1000 V AC for 1 min. (between lead wire and case)
Ambient temperature	-10°C to 60°C
Enclosure	IEC529 standard IP67, JIS C 0920 watertight construction

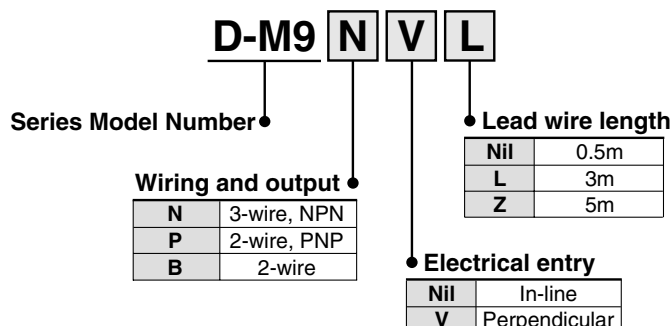
Weight

Unit: g

Model	D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length (m)	0.5	8	7
	3	41	38
	5	68	63

How to Order

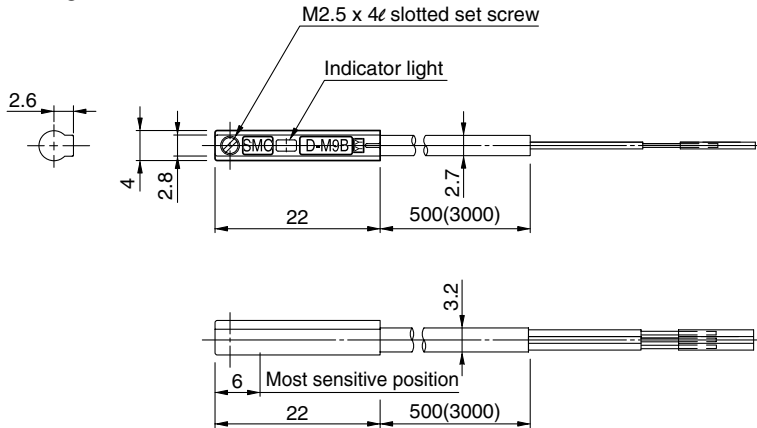
Standard Model Number



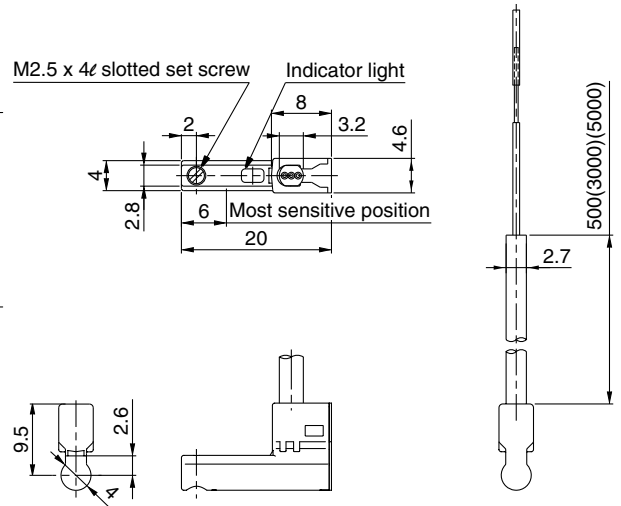
Series D-M9

Auto Switch Dimensions

D-M9□



D-M9□V



⚠ Specific Product Precautions

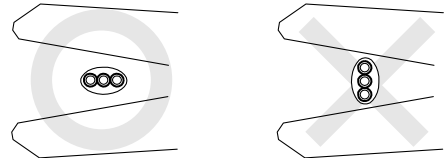
Be sure to read before handling. Contact SMC when the required specification is out of range.

Handling

⚠ Caution

Observe the following precautions when handling the product.

- The D-M9 series of auto switches is not overcurrent-protected. Faulty wiring or short circuit may result in breakage or burning-out of the switch.
- When stripping the cable clad, be careful about the orientation of the cable being stripped. The insulator may be accidentally torn or damaged depending on the orientation, as shown on the right.



- We recommend the following tools

Manufacturer	Product name	Product number
VESSEL	Wire stripper	No 3000G
Tokyo Ideal	Strip master	45-089

* The stripper for the round shape cords (ø2.0) is for a 2-wire style.

- Please do not attach the switch with any other screws than those already attached to the auto switch body.

The operation range is shorter than that of the conventional models.

If the auto switch replaces the conventional model, it may not function depending on its application because the operation range is shorter. Refer to the examples below.

- In an application where at the end, the stopping position shifting range is larger than the operation range. For example, pushing a work against something, or pressing a work into a hole, or clamping a work.
- In an application where the auto switch is used to detect an intermediate stopping position. (Detecting time is shortened.)

Note) Please contact SMC for the operation range details for each actuator.

The switch is damaged instantly when a load is shortened since short circuit protection is not built-in. Pay special attention to avoid reversing the connection of the brown lead of the power supply line and the black output line connection.

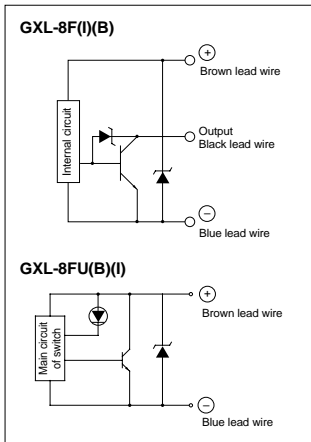
Applicable switch models

Applicable model	Model type	Part no.	Switch type	
LXF LXS	G	GXL-8F	Standard	N.O. (A contact) 3 wire
	GD	GXL-8FI	Varying frequencies	N.O. (A contact) 3 wire
	GB	GXL-8FB	Standard	N.C. (B contact) 3 wire
	GDB	GXL-8FIB	Varying frequencies	N.C. (B contact) 3 wire
	GU	GXL-8FU	Standard	N.O. (A contact) 2 wire
	GUB	GXL-8FUB	Standard	N.C. (B contact) 2 wire

Switch specifications (SUNX Corporation)

Part no.		GXL-8F(I)(B)	GXL-8FU	GXL-8FUB
Repeatability		Direction of detecting axis, Perpendicular to detecting axis: 0.04mm or less		
Power supply voltage		12 to 24VDC $\pm 10\%$, Ripple P-P 10% or less		
Current consumption		15mA	0.8mA or less (when output is OFF)	
Output		NPN Maximum load current: 100mA Maximum applied voltage: 30VDC Residual voltage: 1V or less	2 wire solid state DC Load current: 3 to 70mA Residual voltage: 3V or less	
Maximum response frequency		500Hz	1kHz	
Indicator light		Red LED (lights up when ON)	Green LED (stable detection) Red LED (unstable detection)	
Environmental resistance	Ambient temperature	-10° to 55° C	-25° to 70° C	
	Ambient humidity	45 to 85% RH		
	Noise resistance	Power line: 240Vp, pulse width of 0.5 μ s		
Detecting distance fluctuation	Temperature characteristics	Within $\pm 15\%$ – 10% of detecting distance at 20° C within ambient temperature range		
	Voltage characteristics	Within $\pm 2\%$ with $\pm 10\%$ fluctuation of operating voltage		
Cable		0.08mm 3 wire heavy duty cable 1m	0.15mm 2 wire heavy duty cable 1m	

Proximity switch internal circuit



Proximity Switch/Switch Plate Mounting

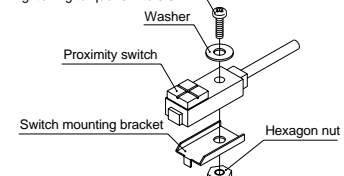
Be sure to use the mounting screws included, and mount the proximity switch as shown in the drawing to the right.

Mount the switch plate as shown below. Always use the proper tightening torque and use a thread locking agent on screws to prevent loosening.

The switch body is made of PBT and acrylic resin. Select a thread locking agent that will not affect these materials.

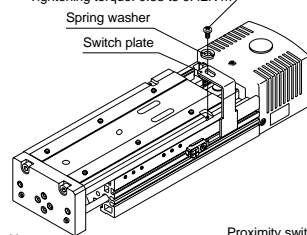
Button head screw (M2.6 x 10)

Tightening torque: 0.4 to 0.5N·m



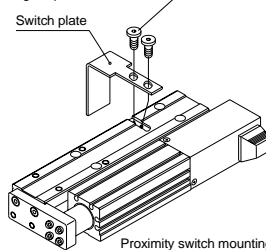
Round head screw (M2.5 x 5)

Tightening torque: 0.38 to 0.42N·m



Thin head screw (M3 x 4)

Tightening torque: 0.38 to 0.42N·m



Proximity switch mounting position

LXF

1mm or more

Proximity switch mounting position

1mm or more

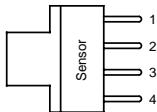
LXS

1mm or more

Standard Photo Micro Sensor for Home Position (OMRON Corporation)

Rating

Power supply voltage	5 to 24VDC $\pm 10\%$, Ripple (p-p) 10% or less		
Current consumption	35mA or less		
Control output	5 to 24VDC load current (Ic) 100mA, Residual voltage 0.8V or less Load current (Ic) 40mA, Residual voltage 0.4V or less		
Ambient temperature	Operation: -25° to 55° C (When stored: -30° to 80° C)		
Ambient humidity	Operation: 5 to 85%RH (When stored: 5 to 95%RH)		
Part no.	EE-SX672 equivalent	EE-SX673 equivalent	EE-SX674
Applicable actuator	LXF	LXP, LXS	LG1 (non-standard motor)



Terminal arrangement

1	Brown	Vcc \oplus
2	White	L*
3	Black	OUTPUT
4	Blue	GND (OV) \ominus

* Normally ON when light is blocked.
However, if the (L) terminal and \oplus terminal are shorted, it changes to ON when light enters.

Output level circuit

Operating condition of output transistor	ON when light enters	ON when light is blocked
Output circuit		
Time chart	<p>(*"L" and "+" shorted)</p> <p>Light enters Light blocked</p> <p>Lighted indicator light (Red) Light ON Light Off</p> <p>Output Transistor ON OFF</p> <p>Load 1 (Relay) Operate Return</p> <p>Load 2 H L</p>	<p>(*"L" and "+" open)</p> <p>Light enters Light blocked</p> <p>Lighted indicator light (Red) Light ON Light Off</p> <p>Output Transistor ON OFF</p> <p>Load 1 (Relay) Operate Return</p> <p>Load 2 H L</p>

LG1

LG1

LG1

LX

LC6D/LC6C

Switches